QUARTERLY SUMMARY
OF THE
IMPROVEMENTS AND DISCOVERIES
IN THE
MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Mechanism of Deglutition.*—Dr. Krishaben has instituted a number of auto-laryngoscopic experiments for the purpose of ascertaining the mechanism of deglutition, and states (*Comptes Rendus*, July, 1865) that in the act of deglutition the alimentary bolus passes along one of the pharyngeal channels on either side of the epiglottis, which last is raised by the elevation of the larynx; the bolus, consequently, enters the œsophagus at the moment when, by the contraction of the constrictor muscles, the pharynx is diminished in size, and is brought up against the bolus. The deglutition of liquids is effected in the same way, except that these pass pretty frequently over the epiglottis itself, which rarely occurs with solid aliments. A small quantity of fluid, when liquids are drunk, enters the larynx around the margin of the epiglottis and may even creep down to and moisten the vocal cords. In the act of gargling, the larynx is widely open, and a large quantity of fluid passes into the interior of the vocal organ.

It is easy to bear with the presence of an alimentary bolus in the respiratory tract, *i. e.*, in the larynx, even on the vocal cords, and in the interior of the trachea. The sensibility of the trachea to the contact of foreign bodies is infinitely less than that of the larynx. The contact of hard and cold bodies with the mucous membrane of the larynx cannot be tolerated; but the contact of soft and moist bodies, of the same temperature as the body, can be sustained for several minutes without occasioning any cough, or other inconvenience. For the performance of these experiments but little practice is required.—*Brit. and For. Med.-Chir. Rev.*, April, 1866.

2. *Transmission of Impressions through the Spinal Cord.*—Dr. Brown-Séquard maintains that in man after an injury damaging the whole transverse thickness of a small portion of one lateral half of the cord there may be observed—a. On the same side. 1. Paralysis of voluntary motion. 2. Hyperæsthesia of sense of contact, for pain, and for temperature in the paralyzed part. 3. An anæsthetic zone of small extent, corresponding to the parts supplied by nerves which take their origin from that part of the spinal cord situated immediately below the lesion. 4. Hyperæsthesia, in a greater or less extent of surface, above the zone of diminished sensibility. 5. Absolute or relative elevation of temperature in the paralyzed parts, and often also in those parts of which the sensibility is exalted, but not in the parts which are not paralyzed. 6. Phenomena indicating paralysis of the origins of the great sympathetic nerve in the neck, when the lesion has occurred in the cervico-brachial enlargement. b. On the opposite side. 1. Complete anæsthesia as regards contact, tickling, pain, and temperature, in those parts which correspond to the

ones that are paralyzed on the opposite side. 2. Perfect preservation of the voluntary movements, and of the muscular sense. 3. A zone of exalted sensibility of small extent, and feeble in degree, situated in the parts above those the sensibility of which is diminished.

In animals M. Brown-Séquard has also observed occasionally amaurosis, ulceration of cornea, hypertrophy of supra-renal capsule, epileptic convulsions, and general augmentation of the vital properties of both the muscles and nerves in the hyperæstheticized parts.

From these observations he considers himself justified in drawing the conclusion, that there is an absolutely complete decussation of the conductors of the various kinds of susceptibility, with the exception only of those conveying the muscular sense. Further clinical facts appear to demonstrate—1. That each of the four species of sensibility referred to above, possesses its own proper conductors which are distinct from those of the other kinds. 2. That each of these species of conductors occupies a distinct part of the spinal cord; and, lastly, that at the upper part of the cervical portion of the spinal cord the four species of conductors coming from the abdominal members and a great part of the trunk, form a group placed behind a similar group constituted by those proceeding from the thoracic members. For numerous cases, and much ingenious reasoning in support of these propositions, the reader is referred to the paper itself, which will well repay perusal.—*Ibid.*, from *Journal Physiol.*, Oct. 1863.

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3. *Relation existing between the Sense of Temperature, the Sense of Touch, and the Sense of Pain.*—The following interesting case of Dr. A. F. SPRING is almost unique, and affords a strong confirmation of the opinions of those who think the sensations of temperature, pain, and pressure are conveyed through separate channels, or are perceived by separate centres. The patient was a female, aged sixty, who had long suffered from hypertrophy of the heart, dyspnœa, and persistent bronchitis. From exposure to cold she became paralyzed, though without loss of consciousness or deviation of the tongue when that organ was protruded. The entire right half of the body, including the head, became insensible to temperature, and to pain, but there was no loss of motor power; the muscular power, in fact, as measured by the dynamometer, being somewhat increased on the affected side. She could feel the slightest touch on the anæsthesiated (?) side, and, when the eyes were closed, she could discover and pick up a pin from the floor. On washing the hands she could distinctly perceive the shock and movement of the water flowing over them, but was quite unable to distinguish whether it was hot or cold. In winter she could only perceive the temperature with the left half of the body, and the same when standing near a fire. The normal temperature of the skin on the affected side was maintained in every part, or differed only to the extent of 1° or 2°. Neither the pricks of needles nor strong pinching was perceived in the slightest degree. She suffered from neuralgia in the temporal region at night. In consultation with M. Schwann, the author ascertained that there was no diminution in the acuteness of the patient's perception in regard to impressions of weight and of contact. The hand lying prone on a table, and weighted with 500 grammes, readily distinguished the addition or removal of two or three grammes, and when weights were concealed in a cloth, and the amount estimated alternately by the two arms, no difference was remarked. From experiments made in the method suggested by Weber for determining the delicacy of touch by applying the points of compasses, it appeared that there was a considerable diminution of acuteness on the left, or healthy side, but a still more marked diminution on the right side. On the eighth day after this consultation the sensibility to pain returned, under the form of a painful formication, and from this time every object appeared *hot* to the patient, so that she was unable to distinguish ice from water at a temperature of 122°. This state lasted two months, when death occurred from an attack of apoplexy.

In this case the sense of variation of temperature, instead of being associated with tactile sensations, followed the same course as the sensations of pain, disappearing and reappearing, though modified with the latter. The muscular